Spock — Computer Log: Global Parameter Sharing in CCSLM

Log entry.

Analysis indicates that CCSLM does not intrinsically require parameters to be partitioned among computational layers.

A single global parameter space may be made accessible to all layers:

$$\Theta = \{\theta_1, \theta_2, \ldots, \theta_M\}.$$

At each layer, contextual information selects the parameters or parameter combinations to be employed:

$$y_n = L(C_n, \Theta)x_n.$$

This permits extensive parameter reuse. A parameter fragment may therefore contribute to multiple layers and multiple contextual states.

The principal advantage is reduced parameter storage. This may be particularly relevant to memory-constrained computational systems.

The principal limitation is loss of structural relatedness. Contextually selected parameter fragments may have no inherent reason to form a coherent transformation when combined.

The resulting design principle may therefore be stated:

> **A global parameter space permits context to select computational fragments rather than complete layer-specific mappings.**

This represents a more general form of **contextual specialization of computational state space**.

End log.